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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* NIAN HUA OU and DAVID RUSSELL WILLIS

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Appeal 2007-3090  
Application 10/071,376  
Technology Center 3600

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Decided: March 31, 2008

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Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and  
JOSEPH A. FISCHETTI, *Administrative Patent Judges*.

FISCHETTI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1-3, 5-8, 10-16. Claims 4 and 9 have been cancelled by amendment dated October 14, 2005. We have jurisdiction under 35 U.S.C. § 6(b). (2002). This appeal arises from the Examiner's Final Rejection, mailed July 14, 2005. The Appellants filed an Appeal Brief in

support of the appeal on September 29, 2006. An Examiner's Answer to the Appeal Brief was mailed on November 27, 2006. Appellants filed a Reply Brief on January 16, 2007.

## SUMMARY OF DECISION

We AFFIRM.

## THE INVENTION

Appellants claim a laminated wood piece which is said to help reduce consumption of harvested timber. (Specification 1:¶ [0002])

Claims 1 and 10, reproduced below, is representative of the subject matter on appeal.

1. A laminated wood piece comprising:

(a) a solid hardwood component having an upper surface and a lower surface that are substantially parallel to each other; and

(b) a wood composite component having layers oriented substantially parallel to the lower surface of the solid hardwood component;

wherein the ratio of a thickness of the solid hardwood component to a thickness of the wood composite component is from about 1:1 to about 1:10, and the width of the piece is about 3 cm to about 6 cm, and a length of the piece is about 120 cm to about 305 cm.

10. A door including a frame, the frame including at least one stile member, the stile member comprising:

(a) a solid hardwood component having an upper surface and a lower surface that are substantially parallel to each other; and

(b) a wood composite component having layers oriented

substantially parallel to the upper surface of the solid hardwood component;

wherein the ratio of a thickness of the solid hardwood component to a thickness of the wood composite component is from about 1:1 to about 1:10.

### THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Iwata	US 5,554,429	Sep. 10, 1996
West	US 6,092,343	Jul. 25, 2000

The following rejections are before us for review.

Claims 1-3 and 5-8 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Iwata.

Claims 10-16 stands rejected under 35 U.S.C. 103(a) as being unpatentable over West and further in view of Iwata.

### ISSUE

The first issue is whether Appellants have sustained their burden of showing that the Examiner erred in rejecting claims 1-3 and 5-8 on appeal as being unpatentable under 35 U.S.C. § 103(a) over Iwata.

The second issue is whether Appellants have sustained their burden of showing that the Examiner erred in rejecting the claims 10-16 on appeal as being unpatentable under 35 U.S.C. § 103(a) over West and Iwata.

## FINDINGS OF FACT

1. The Examiner noted the following correspondence between the disclosure in Iwata and the limitations recited in claim 1:

The patent to Iwata et al. discloses a laminated wood piece having a solid hardwood component (3, See Col. 11 line 27 for material selection) having an upper surface and lower surface that are substantially parallel and a wood composite of oriented strand board (See Col. 2, line 66), having layers (1, 2), the layers being substantially parallel to the lower surface of the hard wood substantially parallel to the lower surface of the hard wood and the layers which have a thickness ration [sic] of 1:1 to 1:10. The thicknesses are 0.2mm to 1mm (Col. 11, line 26) for the hard wood (3)....

(Final Rejection 3).

2. The Examiner found that “Iwata et al. also teaches a wood composite boards [sic] with a density within the range of 35 lbs/ft<sup>3</sup> and 48 lbs/ft<sup>3</sup> (See Col. 9, line 18:0.75 g/cm<sup>3</sup> converts to 46.8 lbs/ft<sup>3</sup>).” (Final Rejection 3).

3. The Examiner also noted that “West... shows the basic inventive concept including a door with opposed doorskins (24), a pair of stile members (18), which are oriented vertically and parallel to each other, a pair of rails (22) and a core (22), wherein the stile is in contact with the core.” (Final Rejection 5).

4. Additionally, the Examiner found that “... it would have been obvious to one of ordinary skill in the art at the time of the invention from

the teachings of Iwata et al. to have used a core [of] Iwata et al. [in West] in order to have the desired strength of the door.” (Final Rejection 6).

5. Iwata discloses that the surface layer is 2 is comprised of thin wooden strips which have a thickness of between 0.1-0.8 mm. (Iwata, col.7 ll.65-67)

6. Iwata discloses that

[i]n surface layers 2, the thin wooden strips are arranged in essentially a single direction, and these are adhered using a binder, and are integrally molded. It is preferable that the direction of arrangement of the thin wooden strips forming these surface layers 2 be parallel to the longitudinal direction of the wood board....

(Iwata col. 7, ll. 43-49)

7. Iwata also discloses that

[t]he thin wooden strips comprising the surface layers 2 preferably have an average value of the length thereof which is within a range of 40-120 mm, and more preferably within a range of 50-100 mm, and the average value of the width thereof is preferably within a range of 6-120 mm, and more preferably within a range of 6-100 mm.

(Iwata col. 7, ll. 50-55)

8. The Specification describes that

[t]he "screw-holding" strength is the amount of force required to pull a screw out of the stile, while the split resistance measures how well the wood resists splitting when a nail or screw is inserted into it. These properties are important because they indicate whether the metal fixtures will be able to

withstand the forces, static and dynamic, exerted on and by a hung door.

(Specification 2: ¶ [0007]).

9. The Specification describes that laminated wood composite have been used in prior art stiles and rails for doors to reduce expense of the product and as an alternative to one-piece solid hardwood stiles and that “[t]hese laminated wood composite styles are made by laminating an outer hardwood strip to a ‘stile backer’ made from a wood composite material.”

(Specification 2 : ¶ [0006] )

10. It is our understanding that screw holding strength is a function of screw diameter and depth of penetration, and density of the board material into which the screw is embedded.

11. The Specification describes the use for the laminated wood piece as a stile or a rail which surrounds or borders a door and that these parts are “...also particularly important because metal fixtures (such as the hinges that hold the door to the door frame, as well as the door lock) are installed in the door stile and held therein.” (Specification 2: ¶ [0005])

12. It is our understanding that a door has a height dimension of about 80 inches (203 cm) and that a stile runs with the length of the door and hence would have that dimension. Figure 3 in West shows a drawing of the rails and stiles as assembled on a door wherein the width of these members looks to be about few inches (1” = 2.5cm).

## PRINCIPLES OF LAW

### *Obviousness*

Section 103 forbids issuance of a patent when “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

*KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations.

*Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 (“While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”), *id* at 1739 (“The combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.”)

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or in a different one. If a person of ordinary skill in the art can implement a predictable variation, § 103 likely bars its patentability.

*Id.* at 1740.



For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

*Id.*

“Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 1742.

*In re Aller*, 220 F.2d 454, 456 (CCPA 1955), (the court set forth the rule that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *See also In re Boesch*, 617 F.2d 272, 276 (CCPA 1980).

Exceptions to this general rule include where the parameter optimized was not recognized to be a result effective variable, *In re Antonie*, 559 F.2d 618, 621, 195 USPQ 6, 8 (CCPA 1977), and where the results of optimizing a variable, which was known to be result effective, were unexpectedly good.

*In re Waymouth*, 499 F.2d 1273, 1276 (CCPA 1974). However, neither of these exceptions to the art recognized principles of optimization and result effective variables are found in the present case.

#### ANALYSIS

We affirm the rejection of claims 1-3 and 5-8 under 35 U.S.C. 103(a) as being unpatentable over Iwata and we affirm the rejection of 10-16 under 35 U.S.C. 103(a) as being unpatentable over West in view of Iwata.

Appellants' arguments against each of these two rejections are based on perceived deficiencies of Iwata. Inasmuch as Appellants raise the same issues with respect to Iwata in each of these rejections, we discuss them together, addressing each of Appellants' arguments in turn.

*The rejection of claims 1-3, 5-8 under 35 USC 103(a) over Iwata*

In sum, Appellants argue "...the Examiner has not made the necessary factual findings to support the use of *Aller*." (Appeal Br. 6) We disagree.

The Examiner made, and Appellants have not challenged, the following factual findings that Iwata discloses:

1) a solid hardwood component having an upper surface and a lower surface that are substantially parallel to each other (FF 1);

2) a wood composite component having layers oriented substantially parallel to the lower surface of the solid hardwood component (FF 1);

3) the thickness of the hard wood of 0.2 mm to 1 mm; and a wood composite board with a density within the range of 35 lbs/ft<sup>3</sup> and 48 lbs/ft<sup>3</sup> (FF 1,2);

4) the ratio of a thickness of the solid hardwood component to a thickness of the wood composite component is about 1:10<sup>1</sup> (FF 1).

In response, Appellants make a general allegation that Iwata "...fails to disclose ... several elements of the present claims...", namely, "...

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<sup>1</sup> We find the thickness ratio of about 1:10 based on the disclosed wood composite component thickness of 12 mm (Iwata, col. 12, ll. 65) and not using the thickness of 0.1 mm to 0.8 mm for each surface layer 2 as used by the Examiner. We nevertheless find that Iwata discloses a thickness ratio of 1:12 which is about 1:10.

thickness, length, width, screw holding strength, and split resistance strength ranges....” (Appeal Br. 6) We are not persuaded by Appellants that the Examiner has failed to make the necessary factual findings to support the use of *Aller*. In much the same way as the claimed invention in *Aller* was “disclosed generally” in the basic prior art composition of solutions<sup>2</sup>, except for using a different process temperature and a different concentration for one solution, so too is Appellants’ claimed laminated piece generally disclosed by Iwata except for length and width dimensions, screw holding strength and split resistance characteristics.

With that said, we address the requirement for the dimensions of the laminated wood piece of a width of about 3 cm to about 6 cm, and of a length of about 120 cm to about 305cm, as required by claim 1. We note that the Specification describes the laminate wood piece for use as a stile or a rail which surrounds or borders a door (FF 9). The length of a laminated wood piece used as a border to a door would have to have the general length dimension of the door which it surrounds. A door usually has a height dimension of about 80 inches (203 cm) (FF 12). The width of such members would be dependent upon the strength one wishes to add to the door by using a stile or rail, but we would consider a few inches, e.g., less than six, to be reasonable based on the drawing of the rails and stiles shown in fragmentary view in Figure 3 in West (FF 12). If we were to use three

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<sup>2</sup> Prior Art references “Hock and Lang disclosed generally the process of decomposition of isopropyl benzene hydroperoxide by sulphuric acid, with the production of phenol and acetone.” *Aller* at 829-830.

inches as an example, a width of 7.5 cm would result and be about 6 cm. Regardless, the length and width dimensions for the laminated wood piece required by claim 1 are those of a rail or stile for a door which may vary with each door design. Therefore, such claimed dimensions can be considered no more than design incentives prompted by predictable variations, and § 103 bars the patentability thereof. *KSR* at 1740.

The thickness requirement of claim 2 for the solid hard wood in Iwata was found to be within the range of 0.3 to 1.3 set by this claim (FF 1), and the wood composite requirement of claim 3 was found to be oriented strand board in Iwata (FF 1).

As to the recited screw holding strength and the split resistance strength ranges of claims 5 and 7, we find that at least the screw holding strength is a function of the density of the laminated wood piece along with screw diameter and depth of penetration (FF 10). As found *supra* (FF 2), the Examiner found the density of the Iwata to be 46.8 lbs/ft<sup>3</sup> within the range of 35 lbs/ft<sup>3</sup> and 48 lbs/ft<sup>3</sup> required by claim 6. Since screw holding strength is a function of density, and the density of the laminated wood piece in Iwata meets the claimed range requirement, then so too should the screw holding strength. Likewise, it follows that the density of the laminated wood piece in Iwata would also control the split resistance of the piece. But even if not, the split resistance characteristic is further a function of screw diameter, and would need to correspond to the screw size used for a door a given design. Therefore, the selection of the 1000 pound split resistance property defined in claim 7, is no more than a matter of obvious design

choice for a person with ordinary skill in the art. *See, In re Hopkins*, 342 F.2d 1010, 1015 (CCPA 1965).

Claim 8, which depends from claim 1, is not separately argued apart from independent claim 1 and thus falls with claim 1. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

*The rejection of claims 10-16 under 35 USC 103(a) over West and Iwata.*

Appellants argue claims 10-16 as a group. We select claim 10 as the representative claim for this group, and the remaining independent claims 14 and 15 stand or fall with claim 10. Claims 11-13, and 16, which depend thereon, are not separately argued apart from independent claims 1 and 15 and thus stand or fall with claims 10, 14 and 15. 37 C.F.R. § 41.37(c)(1)(vii) (2007).

For the reasons that follow, we sustain the Examiner's rejection of claims 10-16.

Appellants argue that "[t]he Examiner's conclusion that the present invention, as recited in claims 10 - 16 would be obvious in view of Iwata and West is untenable considering that these references fails to teach or suggest all of the elements of the present claims." (Appeal Br. 8) However, the only requirement of claim 10 not otherwise found in the recitation of a door is the use of the laminated wood piece as a stile in that door. The door component of the claimed combination is met by the disclosure of such in

West (FF 12). Iwata teaches a laminated wood piece, as discussed above (FF 1 and 2). Thus, we are unconvinced that the combination of West and Iwata fails to teach or suggest all of the elements of the present claims as alleged by Appellants.

Appellants next argue that “...to establish a prima facie case of obviousness: (1) there must be some suggestion or motivation to modify or combine the references as suggested by the Examiner (it is not sufficient to say that the cited reference(s) can be modified or combined without a teaching in the prior art to suggest the desirability of the combination or modification).... (Appeal Br. 9). However, it is no longer the law to require the prior art to teach the suggestion for combining references in view of the Supreme Court’s recent holding in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727 (2007). In *KSR*, the Court characterized the teaching, suggestion, motivation test as a “helpful insight” but found that when it is rigidly applied, it is incompatible with the Court’s precedents. *KSR*, 127 S. Ct. at 1741. The holding in *KSR* makes clear that it is no longer absolutely necessary to find motivation in the references themselves. See *Id.*

Appellants argue the Examiner applied hindsight construction (Appeal Br. 9) in making the combination of West and Iwata under 35 U.S.C. § 103(a). However, the Examiner in making this combination simply applied the admitted known practice of using engineered rails and stiles for use in doors (FF 8, 9). The wood pieces in Iwata and the prior art door stiles and rails use laminated wood (FF 9), and thus are in the same

field of endeavor drawn to change merely by design forces which required greater strength. When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or in a different one. If a person of ordinary skill in the art can implement a predictable variation, § 103 likely bars its patentability.

*Id.* at 1740, 82.

For these reasons, we sustain the rejection of claims 10-16 under 35 U.S.C. § 103(a).

#### CONCLUSIONS OF LAW

We conclude that Appellants have not shown that the Examiner erred in rejecting the claims on appeal.

#### DECISION

The decision of the Examiner to reject claims 1-3, 5-8, and 10-16 is AFFIRMED.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

vsh

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